

## ABSTRACT

A substrate processing system is provided, which efficiently utilizes reactive substances or carrier gases necessary for the surface processing of a substrate, simplifies equipment for the gas transfer and effects energy saving. This system comprises a gas supply source 12 for supplying a process gas containing a reactive substance, a reservoir tank 14 connected to the gas supply source 12 for reserving the process gas, a reactor 10 for exposing a substrate placed therein to the process gas, a first circulation pipe 38 for introducing the process gas inside the reactor 10 into the reservoir tank 14, a second circulation pipe 42 for introducing at least part of the process gas in the reservoir tank 14 into the reactor 10, and a flow regulating valve 44 disposed in the second circulation pipe 42 for regulating the amount of process gas to be introduced into the reactor 10.